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KIM, HONG CHONG				
ART UNIT		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@procopio.com

PTONotifications@procopio.com

**Office Action Summary****Application No.**

09/832,812

**Applicant(s)**

SARKOZY ET AL.

**Examiner**

Hong Kim

**Art Unit**

2185

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 October 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Statement(s) (PTO/SF-102)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

### **DETAILED ACTION**

1. Claims 1-10 are presented for examination. This office action is in response to the amendment filed on 10/13/2010.

2. Applicant is reminded of the continuing obligation under 37 CFR 1.178(b), to timely apprise the Office of any prior or concurrent proceeding in which Patent No. 5,93,919 is or was involved. These proceedings would include interferences, reissues, reexaminations, and litigation.

Applicant is further reminded of the continuing obligation under 37 CFR 1.56, to timely apprise the Office of any information which is material to patentability of the claims under consideration in this reissue application.

These obligations rest with each individual associated with the filing and prosecution of this application for reissue. See also MPEP §§ 1404, 1442.01 and 1442.04.

3. Any objections or rejections made in the previous office action which are not specifically repeated below are withdrawn.

4. Applicant is notified that any subsequent amendment to the specification and/or claims must comply with 37 CFR 1.173(b). In addition, when any substantive amendment is filed in the reissue application, which amendment otherwise places the reissue application in condition for allowance, a supplemental oath/declaration will be

required. See MPEP § 1414.01. Applicant is notified that any subsequent amendment to the specification and/or claims must comply with 37 CFR 1.173(b). In addition, when any substantive amendment is filed in the reissue application, which amendment otherwise places the reissue application in condition for allowance, a supplemental oath/declaration will be required. See MPEP § 1414.01.

### ***Claim Objections***

5. Claims 1, 6, and 10 are objected to because of the following informalities:
  6. As to claim 1 in line 22 "the first storage address" lacks antecedent basis. As to claim 6 in line 23 "the first storage address" lacks antecedent basis.
- Appropriate correction is required.

### ***Claim Rejections - 35 USC ' 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 2, 4, 6, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) col. 1-2 in view of InfoWorld, March 25, 1996 v18 n13n p42(1), Rathunde US Patent No. 5574,851, or Jacobson et al. (Jacobson) US Patent No. 5,546,558 and further in view of

Mourad, US Patent No. 5,678,061, Stallmo US Patent No. 5,519,844, or The RAIDBook, Edition 1-1, The RAID Advisory Board, November 18, 1983, entire pages.

As to claims 1 and 6, AAPA discloses in a mass storage mechanism for a system having mass storage devices for storing data and parity blocks respectively containing data and parity information wherein the system includes a host processor including memory and disk management facilities and a disk platform connected from the host processor and controlling a plurality of disk drive units comprising the mass storage devices (col. 1 lines 25- col. 2 lines 57 and see Fig. 2 in US patent 5,257,367), a protection mechanism providing user selectable levels of protection against data loss, comprising:

the plurality of disk drives for storing data in data blocks in storage segments of the disk drives and for storing parity blocks in storage segments of the disk drives (col. 1 line 53 thru col. 2 line 19),

each parity block contains parity information relating to the data stored in a plurality of corresponding data blocks wherein each one of the corresponding data blocks are located in a different one of the data disk drives (col. 1 line 53 thru col. 2 line 19), a memory management mechanism for controlling operations of the disk platform for writing data blocks and parity blocks into the disk drives (col. 1 line 25 thru col. 2 line 27 and Fig. 2 in US patent 5,257,367 ), and writing at least one parity block containing parity information relating to the data block into the disk drives (col. 1 line 53 thru col. 2 line 19).

Although, AAPA discloses using parity information and both mirroring data and parity in a second set of disk or a second mass storage system to increase data protection in a disk system, AAPA does not specifically disclose a disk allocation mechanism for storing an identification of at least one of the units to be mirrored and the memory management mechanism being responsive to the identification of a unit for mirroring all data blocks written into the designated unit.

InfoWorld discloses a disk allocation mechanism for storing an identification (RAID level) of at least one of the units to be mirrored and the memory management mechanism being responsive to the identification of a unit for mirroring all data blocks written into the designated unit ("supports migration between RAID Levels 0, 1, 3, and 5" and "The system supports RAID Levels 0, 0+1, 1, and 5, as well as a variant of RAID Level 3" read on this limitation since the RAID level identifies whether the disk system is mirrored or not) for the purpose of providing different level of protection.

Alternatively, Rathunde discloses a disk allocation mechanism for storing an identification (RAID level) of at least one of the units to be mirrored and the memory management mechanism being responsive to the identification of a unit for mirroring all data blocks written into the designated unit (abstract, reconfiguration on a RAID level 0, 1, 2, 3, 4, or 5 disk array) for the purpose of providing different level of protection

Alternatively, Jacobson discloses a disk allocation mechanism for storing an identification (RAID level) of at least one of the units to be mirrored and the

memory management mechanism being responsive to the identification of a unit for mirroring all data blocks written into the designated unit (col. 7 lines 54 +, level change) for the purpose of providing different level of protection.

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a disk allocation mechanism for storing an identification of at least one of the units to be mirrored and the memory management mechanism being responsive to the identification of a unit for mirroring all data blocks written into the designated unit as taught by InfoWorld, Rathunde, or Jacobson into the disk storage mechanism of AAPA for the advantages stated above.

Although, AAPA discloses a second set of disk drives to store duplication data (col. 2 lines 14-18), neither AAPA, InfoWorld, Rathunde, nor Jacobson specifically discloses wherein the storage segments of the disk drives are organized into at least two functionally separate logical units, writing a first copy of a data block assigned to a first storage address in a designated logical unit into the first storage address in the designated logical unit and writing a second copy of the data block assigned to a storage address in a designated logical unit into a second storage address in the disk drives wherein the second storage address is skewed with respect to the first storage address so that the second storage address is located in a disk drive separate from the disk drive containing the first storage address.

Mourad discloses wherein the storage segments of the disk drives are organized into at least two functionally separate logical units (Fig. 2, col. 4 lines

5-20, a primary section and a secondary section), writing a first copy (Fig. 2 D0 in a primary section and a secondary section) of a data block assigned to a first storage address in a designated logical unit into the first storage address in the designated logical unit and writing a second copy (Fig. 2 D1 in a primary section and a secondary section and col. 4 lines 5-50) of the data block assigned to a storage address in a designated logical unit into a second storage address in the disk drives wherein the second storage address is skewed with respect to the first storage address so that the second storage address is located in a disk drive separate from the disk drive containing the first storage address (Fig. 2 see D0 and D1 in a primary section and a secondary section and col. 4 lines 5-50) for the purpose of increasing flexibility and reliability of a drive storage system.

Alternatively, Stallmo discloses wherein the storage segments of the disk drives are organized into at least two functionally separate logical units (Fig. 2D Logical Volume #0 and Logical Volume #1), writing a first copy (Block 4 in Fig. 2D) of a data block assigned to a first storage address in a designated logical unit into the first storage address in the designated logical unit and writing a second copy (Block 12 in Fig. 2D) of the data block assigned to a storage address in a designated logical unit into a second storage address in the disk drives wherein the second storage address is skewed with respect to the first storage address so that the second storage address is located in a disk drive separate from the disk drive containing the first storage address (Blocks 4 and 12



in Volumes #0 and #1 in Fig. 2D) for the purpose of increasing flexibility and reliability of a drive storage system

Alternatively, RAIDBook discloses wherein the storage segments of the disk drives are organized into at least two functionally separate logical units (Member Disks 0-2 and Disk 3-5 in Fig. 43), writing a first copy (Chunk 0) of a data block assigned to a first storage address in a designated logical unit into the first storage address in the designated logical unit and writing a second copy (Chunk 1) of the data block assigned to a storage address in a designated logical unit into a second storage address in the disk drives wherein the second storage address is skewed with respect to the first storage address so that the second storage address is located in a disk drive separate from the disk drive containing the first storage address (relationship between Chunk 0 and Chunk 1) for the purpose of increasing flexibility and reliability of a drive storage system

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate wherein the storage segments of the disk drives are organized into at least two functionally separate logical units, writing a first copy of a data block assigned to a first storage address in a designated logical unit into the first storage address in the designated logical unit and writing a second copy of the data block assigned to a storage address in a designated logical unit into a second storage address in the disk drives wherein the second storage address is skewed with respect to the first storage address so that the second storage address is located in a disk drive

separate from the disk drive containing the first storage address as taught by Mourad, Stallmo, or RAIDBook into the combined disk storage mechanism of AAPA and InfoWorld, Rathunde, or Jacobson for the advantages stated above.

As to claims 2 and 7. Wherein the data blocks are organized in the data disk drives in a striped configuration so that each sequentially addressed data block is located in a different sequential one of the disk drives is disclosed by AAPA (col. 1 lines 64-67), InfoWorld (RAID Levels 0+1, 1, 5, and a variant of RAID Level3), Rathunde (Fig. 2), Jacobson (Fig. 3), Mourad (Fig. 2), Stallmo (Fig. 2D), and RAIDBook (Fig. 43).

As to claims 4 and 9. Wherein the identification of at least one of the logical units to be mirrored is selectively entered by user command is disclosed by InfoWorld ("supports migration between RAID Levels 0, 1, 3, and 5" and "The system supports RAID Levels 0, 0+1, 1, and 5, as well as a variant of RAID Level 3" read on this limitation since the RAID level can be selected by a user), Rathunde (abstract, reconfiguration on a RAID level 0, 1, 2, 3, 4, or 5 disk array), Jacobson (col. 7 lines 54+), AAPA (col. 2 lines 14-18), Mourad (col. 4 lines 32-34), Stallmo (abstract, selecting redundancy level of none, one or two and RAID configuration), and RAIDBook (selecting RAID level on page 15 bottom).

2. Claims 3, 5, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) col. 1-2 in view of in view of Mourad, US Patent No. 5,678,061, Stallmo US Patent No. 5,519,844, or The RAIDBook, Edition 1-1, The RAID Advisory Board, November 18, 1983, entire pages and further in view of InfoWorld, March 25, 1996 v18 n13n p42(1) or Murai US Patent No 5,033,050.

As to claims 3 and 8, AAPA discloses in a mass storage mechanism for a system having mass storage devices for storing data blocks containing data and parity blocks containing parity information wherein the system includes a host processor including memory and disk management facilities and a disk platform connected from the host processor and controlling a plurality of disk drive units comprising the mass storage devices (col. 1 lines 25- col. 2 lines 57 and see Fig. 2 in US patent 5,257,367), a protection mechanism providing user selectable levels of protection against data loss, comprising:

the plurality of disk drives for storing data blocks in storage segments of the disk drives and storing parity blocks in storage segments of the disk drives(col. 1 line 53 thru col. 2 line 19),

each parity block contains parity information relating to the data stored in a plurality of corresponding data blocks wherein each one of the corresponding data blocks are located in a different one of the disk drives(col. 1 line 53 thru col. 2 line 19),

a memory management mechanism for controlling operations of the disk platform for writing data blocks and parity blocks into the disk drives (col. 1 line 25 thru col. 2 line 27 and Fig. 2 in US patent 5,257,367 ),

Although, AAPA discloses a second set of disk drives to store duplication data (col. 2 lines 14-18), AAPA does not specifically disclose wherein the storage segments of the disk drives are organized into at least two functionally separate logical units for storing data blocks wherein each logical unit includes storage segments on each one of the disk drives.

Mourad discloses wherein the storage segments of the disk drives are organized into at least two functionally separate logical units for storing data blocks wherein each logical unit includes storage segments on each one of the disk drives (Fig. 2, col. 4 lines 5-20, a primary section and a secondary section) for the purpose of increasing flexibility of a drive storage system.

Alternatively, Stallmo discloses wherein the storage segments of the disk drives are organized into at least two functionally separate logical units for storing data blocks wherein each logical unit includes storage segments on each one of the disk drives (Fig. 2D Logical Volume #0 and Logical Volume #1) for the purpose of increasing flexibility of a drive storage system

Alternatively, RAIDBook discloses wherein the storage segments of the disk drives are organized into at least two functionally separate logical units for storing data blocks wherein each logical unit includes storage segments on each

one of the disk drives (Member Disks 0-2 and Disk 3-5 in Fig. 43) for the purpose of increasing flexibility of a drive storage system

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate wherein the storage segments of the disk drives are organized into at least two functionally separate logical units for storing data blocks wherein each logical unit includes storage segments on each one of the disk drives as taught by Mourad, Stallmo, or RAIDBook into the disk storage mechanism of AAPA for the advantages stated above.

Although, AAPA discloses using parity information and both mirroring data and parity in a second set of disk or a second mass storage system to increase data protection in a disk system, neither AAPA, Mourad, Stallmo, nor RAIDBook specifically discloses wherein the memory management mechanism is responsive to assertion of a parity inhibit command for writing only data blocks into the disk drives, the memory management mechanism is responsive to de-assertion of the parity inhibit command for determining which data blocks have been written into the disk drives without corresponding parity blocks written into a disk drive, reading the data blocks written into the disk drives without corresponding parity blocks and all associated data blocks having a corresponding parity block corresponding to each of the data blocks written into the disk drives without corresponding parity blocks, and generating and writing into a disk drive at least one parity block corresponding to each of the data blocks written into the disk drives without corresponding parity blocks.

InfoWorld discloses wherein the memory management mechanism is responsive to assertion of a parity inhibit command (Selecting RAID Level) for writing only data blocks into the disk drives, the memory management mechanism is responsive to de-assertion of the parity inhibit command for determining which data blocks have been written into the disk drives without corresponding parity blocks written into a disk drive, reading the data blocks written into the disk drives without corresponding parity blocks and all associated data blocks having a corresponding parity block corresponding to each of the data blocks written into the disk drives without corresponding parity blocks, and generating and writing into a disk drive at least one parity block corresponding to each of the data blocks written into the disk drives without corresponding parity blocks ("supports migration between RAID Levels 0, 1, 3, and 5" and "The system supports RAID Levels 0, 0+1, 1, and 5, as well as a variant of RAID Level 3" read on this limitation since selection between the RAID level 0 or 1 and 3 or 5 providing capability for inhibiting and allowing parity generation) for the purpose of providing different level of protection.

Alternatively, Murai discloses wherein the memory management mechanism is responsive to assertion of a parity inhibit command (col. 3 line 56 thru col. 4 line 12) for writing only data blocks into the disk drives, the memory management mechanism is responsive to de-assertion of the parity inhibit command for determining which data blocks have been written into the disk drives without corresponding parity blocks written into a disk drive, reading the data blocks written into the disk drives without

corresponding parity blocks and all associated data blocks having a corresponding parity block corresponding to each of the data blocks written into the disk drives without corresponding parity blocks, and generating and writing into a disk drive at least one parity block corresponding to each of the data blocks written into the disk drives without corresponding parity blocks (col. 3 line 56 thru col. 4 line 12) for the purpose of providing different level of protection.

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate wherein the memory management mechanism is responsive to assertion of a parity inhibit command for writing only data blocks into the disk drives, the memory management mechanism is responsive to de-assertion of the parity inhibit command for determining which data blocks have been written into the disk drives without corresponding parity blocks written into a disk drive, reading the data blocks written into the disk drives without corresponding parity blocks and all associated data blocks having a corresponding parity block corresponding to each of the data blocks written into the disk drives without corresponding parity blocks, and generating and writing into a disk drive at least one parity block corresponding to each of the data blocks written into the disk drives without corresponding parity blocks as taught by InfoWorld or Murai into the combined disk storage mechanism of AAPA, Mourad, Stallmo, and RAIDBook for the advantages stated above.

As to claims 5 and 10, The parity inhibit command is asserted and de-asserted by user command is disclosed by InfoWorld ("supports migration between RAID Levels

0, 1, 3, and 5" and "The system supports RAID Levels 0, 0+1, 1, and 5, as well as a variant of RAID Level 3" read on this limitation) or Mourad (col. 3 line 56 thru col. 4 line 12).

### ***Response to Arguments***

3. Applicant's arguments filed on 10/13/10 have been fully considered but they are not persuasive.

Applicant's remarks on pages 51-52 that the references not teaching identification of a logical unit to be mirrored have been fully considered but they are not persuasive.

A RAID level changing from a first level such as a RAID level 0 to a second level such as a RAID level 1 or other known RAID configuration 0+1 or 5+1 as disclosed in InfoWorld ("supports migration between RAID Levels 0, 1, 3, and 5" and "The system supports RAID Levels 0, 0+1, 1, and 5, as well as a variant of RAID Level 3"), Rathunde (abstract, reconfiguration on a RAID level 0, 1, 2, 3, 4, or 5 disk array and col. 11 lines 8-10), or Jacobsen (col. 7 lines 54 +, level change) reads on claimed limitation of identification of a logical unit to be mirrored since a RAID level 0 is for a non mirroring disk format a RAID 1, 0+1 or 5+1 is for a mirroring disk format.

Also Mourad discloses writing a first copy (Fig. 2 D0 in a primary section and a secondary section) to a logical unit and writing a second copy (Fig. 2 D1 in a primary section and a secondary section and col. 4 lines 5-50) to a logical unit



Alternatively, Stallmo discloses writing a first copy (Block 4 in Fig. 2D) to a logical unit and writing a second copy (Block 12 in Fig. 2D) to a logical unit.

Alternatively, RAIDBook discloses writing a first copy (Member Disks 0-2 and Disk 3-5 in Fig. 43, Chunk 0) to a logical unit and writing a second copy (Chunk 1) to a logical unit .

Therefore broadly written claims are disclosed by the references cited.

### ***Conclusion***

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached PTO-892.
2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
  1. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

3. When responding to the office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections. See 37 C.F.R. ' 1.111(c).

4. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist examiner to locate the appropriate paragraphs.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong C Kim whose telephone number is (571) 272-4181. The examiner can normally be reached on M-F 9:00 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sanjiv Shah can be reached on (571) 272-4098. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 whose telephone number is (571) 272-2100.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**7. Any response to this action should be mailed to:**

Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**or faxed to TC-2100:**  
(571)-273-8300

Hand-delivered responses should be brought to the Customer Service Window (Randolph Building, 401 Dulany Street, Alexandria, VA 22314).

/Hong Kim/  
Primary Examiner, Art Unit 2185